

Notice of Allowability

Application No.

10/667,714

Examiner

Ivan H. Carpio

Applicant(s)

BELADY, CHRISTIAN L.

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/20/07.
2. ☒ The allowed claim(s) is/are 22,24 and 28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20070301</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

The application has been amended as follows:

Claims 1-21,23,25-27 and 29-33 are cancelled without prejudice.

Claim 22 [Currently Amended] ~~The system of claim 21~~ A liquid cooled modular electronics system, comprising: one or more sealed electronics modules, a sealed electronics module including: one or more electronics components arranged within the sealed electronics module; one or more connectors attached to the sealed electronics module, the connectors configured to provide one or more detachable connections between the sealed electronics module and liquid transporting means for providing liquid communication between the sealed electronics module and one or more external liquid cooling modules; and means arranged within the sealed electronics module for dissipating heat generated by one or more of the one or more electronics components using liquid that is transported between the sealed electronics module and the external liquid cooling module; and one or more liquid cooling modules, a liquid cooling module including: one or more connectors attached to the liquid cooling module, the connectors configured to provide one or more detachable connections between the liquid cooling module and the liquid transporting means; means arranged within the liquid cooling module for receiving a liquid to be cooled; means arranged within the liquid cooling module for cooling the liquid to be cooled into a cooled liquid; means arranged within the liquid cooling module for providing the cooled liquid to one or more sealed electronics modules via the liquid transporting means; and means arranged within the

Art Unit: 2841

liquid cooling module for dissipating heat transferred to the liquid cooling module from the liquid to be cooled; where the one or more liquid cooling modules and the one or more sealed electronics modules are separate modules that can be selectively connected together by the one or more detachable connections to establish liquid communication therebetween, and where the one or more sealed electronics modules are configured to be dynamically operably connected by a detachable connection to the one or more second liquid cooled cooling electronics modules[.] and where the one or more sealed electronics modules and the one or more liquid cooling electronics modules are to be positioned in a single rack.

Claim 24 [Currently Amended] ~~The system of claim 23,~~ A liquid cooled modular electronics system, comprising: one or more sealed electronics modules, a sealed electronics module including: one or more electronics components arranged within the sealed electronics module; one or more connectors attached to the sealed electronics module, the connectors configured to provide one or more detachable connections between the sealed electronics module and liquid transporting means for providing liquid communication between the sealed electronics module and one or more external liquid cooling modules; and means arranged within the sealed electronics module for dissipating heat generated by one or more of the one or more electronics components using liquid that is transported between the sealed electronics module and the external liquid cooling module; and one or more liquid cooling modules, a liquid cooling module including: one or more connectors attached to the liquid cooling module, the connectors configured to provide one or more detachable connections between the liquid cooling

Art Unit: 2841

module and the liquid transporting means; means arranged within the liquid cooling module for receiving a liquid to be cooled; means arranged within the liquid cooling module for cooling the liquid to be cooled into a cooled liquid; means arranged within the liquid cooling module for providing the cooled liquid to one or more sealed electronics modules via the liquid transporting means; and means arranged within the liquid cooling module for dissipating heat transferred to the liquid cooling module from the liquid to be cooled; where the one or more liquid cooling modules and the one or more sealed electronics modules are separate modules that can be selectively connected together by the one or more detachable connections to establish liquid communication therebetween, where the one or more sealed electronics modules are individually sealed with respect to electromagnetic interference[.] and where the one or more sealed electronics modules and the one or more liquid cooling modules are to be positioned in a single rack mounting system.

Claim 28 [Currently Amended] ~~The system of claim 21,~~ A liquid cooled modular electronics system, comprising: two or more sealed electronics modules, a sealed electronics module including: one or more electronics components arranged within the sealed electronics module; one or more connectors attached to the sealed electronics module, the connectors configured to provide one or more detachable connections between the sealed electronics module and liquid transporting means for providing liquid communication between the sealed electronics module and one or more external liquid cooling modules; and means arranged within the sealed electronics module for dissipating heat generated by one or more of the one or more electronics components

Art Unit: 2841

using liquid that is transported between the sealed electronics module and the external liquid cooling module; and two or more liquid cooling modules, a liquid cooling module including: one or more connectors attached to the liquid cooling module, the connectors configured to provide one or more detachable connections between the liquid cooling module and the liquid transporting means; means arranged within the liquid cooling module for receiving a liquid to be cooled; means arranged within the liquid cooling module for cooling the liquid to be cooled into a cooled liquid; means arranged within the liquid cooling module for providing the cooled liquid to one or more sealed electronics modules via the liquid transporting means; and means arranged within the liquid cooling module for dissipating heat transferred to the liquid cooling module from the liquid to be cooled; where the two or more liquid cooling modules and the two or more sealed electronics modules are separate modules that can be selectively connected together by the one or more detachable connections to establish liquid communication therebetween, where two or more liquid cooling modules are configured in a redundant fail-over system[.], and where the two or more liquid cooling modules and the two or more sealed electronics modules are configured to be arranged in a single rack.

Allowable Subject Matter

Claims 22,24, and 28 are allowed.

The following is an examiner's statement of reasons for allowance: With regards to claim 22 patentability exists, at least partially, with one or more sealed electronics modules are configured to be dynamically operably connected by a detachable

connection to the one or more second liquid cooling electronics modules, and where the one or more sealed electronics modules and the one or more liquid cooling electronics modules are to be positioned in a single rack along with the combination of all the limitations claimed. With regards to claim 24 patentability exists, at least partially, with one or more sealed electronics modules are individually sealed with respect to electromagnetic interference and where the one or more sealed electronics modules and the one or more liquid cooling modules are to be positioned in a single rack mounting system. With regards to claim 28 patentability exists, at least partially, with two or more liquid cooling modules are configured in a redundant fail-over system, and where the two or more liquid cooling modules and the two or more sealed electronics modules are configured to be arranged in a single rack.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

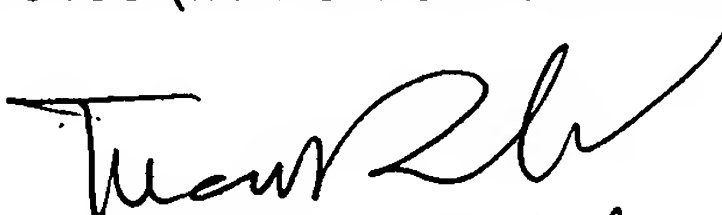
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ivan H. Carpio whose telephone number is 571-272-8396. The examiner can normally be reached on T-F 7:00am - 5:30pm.

Art Unit: 2841

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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